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Original Articles.

SILENT RENAL CALCULI.

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IT is a well-known fact that renal calculi exist which give few if any symptoms, since they are occasionally shown by the x-ray when some other lesion is being studied or the discovery of albumin or a few pus cells by a life insurance examiner results, on closer study, in revealing their presence. How frequently these so-called silent calculi occur and how much damage they cause the kidney are not so well known.

A question of equal interest and likewise one about which there is very little accurate data is that concerning cases in which non-operative treatment has to be considered: how long can a stone known to exist in a kidney be left without serious damage to the kidney? Can damage occur without showing signs in the urine?

In hopes of getting a few facts to help out on these questions I have gone through the literature of the last few years and have also looked over 4,000 autopsies done at the Massachusetts General Hospital since 1896, and where stones were found I noted the gross and microscopic condition of the kidneys and correlated these data with the clinical symptoms and urinary findings.

In the textbooks and literature on renal calculi it is assumed, and I believe correctly, that a stone is a potential if not at the time an actual cause of damage, and as such should be removed. But in a few of the more recent articles there are statements as to what the author believes is sufficient reason for not operating.

Braasch says that when a stone is 1 cm. or less in diameter it is a question whether operation is needed or not.

Kretschmer, without giving any figures as to size, says that with small stones intervention is unnecessary.

Bevan says that if a stone is one-half inch or more in diameter operation is necessary. He also says that "the trouble given by kidney stone varies tremendously. I have seen a number of cases where the kidney stones had existed for years and where they were simply innocuous and where they gave rise to no symptoms whatever. We cannot properly insist upon operation for removal of kidney stones merely because we have definite evidence of their presence."

William J. Mayo speaks of the large branched calculus where removal would mean much kid-

ney destruction, and says he has seen "several cases of their description who have gone for years without apparent progress of the disease."

Furniss, in writing about the damage done by renal calculi, says that it is entirely due to obstruction and infection and that stones in calyces cause little damage.

Kraft, as quoted by Keys, found forty cases of renal stones in 2953 autopsies and his conclusions are as follows: "If calculus remains imbedded in the cortex, the pathological changes may be slight or absent, and when they do occur they are due to infection. If the stone is in the pelvis or calyx it almost always produces more or less well marked pathological changes and invites infection."

Since 1896 there have been 3960 autopsies at the Massachusetts General Hospital and in 45 cases stones were found in the kidney or ureter or both. Of these cases seven were cases which had been operated on for stone and one small stone out of many or a fragment from a large stone had been lost in a pyonephrotic cavity, or in a bilateral case one side had been done and the second side was to have been done at a later operation. There was one case with calculous pyonephrosis who died without operation. In all these cases there were known to be stones and known to be renal damage so that these eight cases are not discussed. This leaves 37 cases where stone was discovered at autopsy in patients who were in the hospital for some other condition. In three of these, stones were known to be present but had nothing to do with the condition from which the person suffered and which was the cause of death.

Considering the clinical side of these cases first, there were 24 patients who had no symptoms pointing toward the kidney or at least none which they thought worth speaking about. Of the 24 cases only four had a negative urine. Of the remaining 20, 13 had a slight evidence of trouble in the urine such as a slight trace of albumin and a few pus cells or even less; six had much albumin and pus, while one had no urinary examination recorded, in the short time before death. Six of the 20 with positive urinary findings had another urinary lesion (four obstructing prostate and two stricture with perineal sinus) which might well cause the changes noted in the urine. Nine patients had symptoms which, on looking back, should have pointed to the diagnosis, especially as eight of these had albumin and pus or blood or both in the urine, and seven of the nine died of renal insufficiency and sepsis. With all of these seven I believe a diagnosis could easily have been made if symptoms other than those pointing toward the kidney had not seemed so important as to push the kidney picture into the background.

The pathological record of these kidneys is interesting inasmuch as it does not always correspond entirely with the urinary findings. The stones were bilateral in seven cases out of the 37 and multiple in 20, and varied in size from one to two mm. in diameter up to large branched calculi filling and almost completely destroying the kidney.

There was only one stone in the cortex and this was not a stone but a hard piece of bone one-half inch in diameter. It was in a kidney showing early tuberculosis and was not itself causing any gross damage. The remainder were almost equally divided between ureter, pelvis, and calyces; 16 times in the pelvis, and 13 times each in ureter and calyces.

In 15 cases there was no gross damage to the kidney but in nine of the 15 there was a definite statement about slight dilatation of the pelvis or calyces or microscopically there was some increase of interstitial tissue "with slight atrophy of renal elements." The largest stone in this series was four and one-half cm. in diameter. One was called large but no dimensions were given. Of the 15 only two were ureter stones, and in one of these there was beginning dilatation of the pelvis. The other was in a small pocket in the ureter and only slightly obstructed.

In the remaining 22 cases there was more or less damage up to complete destruction of the kidney.

In five cases there was a chronic interstitial nephritis present but it was always a bilateral process and apparently had no causal connection with the stone. In one case, after a detailed study of the kidney, the pathologist ends by saying, "This process can in no way be considered secondary to the stone." Microscopical examination of kidney tissue in the cases with no gross damage showed in several instances "slight atrophy of renal elements" or slight arteriosclerotic changes, but in six cases, two of them containing large stones, there is no macroscopic or microscopic change.

In comparing the clinical and pathological aspects we find that one case who was known to have had a stone for six years had a negative urine and a normal kidney. Another case who had passed stones for at least seven years had a negative urine, and aside from a very slight dilatation a normal kidney. Of the four cases without symptoms and with negative urinary findings only one showed an entirely normal kidney; it contained many small stones in pelvis and calyces. The other three were, however, essentially normal, some interstitial change and atrophy of renal elements being the only thing noted. In two the stones were small, but in one it was one and one-half inches in diameter. Of the 15 where the pathologist found no evidence of sepsis the urine contained pus in nine. Of the six where the pathologist found no gross or microscopic evidence of trouble the clinician found pus in three.

CONCLUSIONS.

In nearly 4,000 autopsies at the Massachusetts General Hospital showing stone in the kidney or ureter, there was only one case with a completely negative history and urinary findings and normal kidney macroscopically and microscopically; but there were four cases without symptoms and with a negative urine; six cases without any damage to be demonstrated at autopsy; and 15 cases where the damage was too slight to compromise the integrity of the kidney.

Two cases with stones in calyces known to have been present for at least six or seven years, who had had repeated attacks of renal colic, showed one a normal and the other an essentially normal kidney.

Stones in the ureter more surely do kidney damage than stones in the pelvis or calyx, and a small stone if arrested in the ureter may do as much damage as a large one. Stones in the calyces can cause as much damage as stones in the pelvis.

Pus can be present during life without any evidence of infection or damage at autopsy, so that the presence of infection as well as of pus is necessary before important kidney damage is proved to be present.

The presence of a stone of any size in ureter, pelvis, or calyx may cause slight tissue changes, characterized microscopically as, "slight increase of interstitial tissue," "slight arteriosclerosis" or "slight atrophy of renal elements," but these lesions are not constant, and apparently are of little if any account so far as the work of the kidney is concerned; aside from this there is no damage done the kidney by the stone as such. But the vast majority of renal or ureteral stones do at some time or other cause some obstruction and always invite infection and accordingly are sources of danger to the individual.

There is no arbitrary standard by which we can say that a given renal stone may or may not have to be operated on. But in any given case without infection or other evidence of kidney damage a calculus may be left alone until it is passed, until pain forces an operation, until evidence of infection and damage begin, or until it is shown to be increasing in size so that a pyelotomy becomes more difficult. In the case of a ureter stone, if in spite of cystoscopic manipulation it has ceased to make progress, it should be removed after remaining stationary for only a relatively short time, in spite of possible lack of symtoms, as the kidney is almost certainly going to be badly damaged.

A SERIES OF 100 CONSECUTIVE ACUTE EMPYEMATA.*

BY WYMAN WHITTEMORE, M.D., F.A.C.S., BOSTON.

THE series of 100 consecutive cases of acute empyema which I have chosen to bring to your attention today extends back over a period of a year and eight months, dating from the middle of this last April. Ninety-two of these cases were operated on at the Massachusetts General Hospital and eight outside. During this time I have operated upon every case offered to me with one exception. This one case died within half an hour of the time that I saw him. Being my own personal cases, I feel that I can criticize the results and mistakes very freely.

As I have tried to make this paper very brief, I shall not go into statistics any more than is unavoidable but will show the immediate results obtained by the different surgical procedures used. Many of the cases having been operated upon recently, it is impossible to report the final results as to what cases became chronic.

* Read before the Second Annual Meeting of the American Association for Thoracic Surgery, at Atlantic City, June, 1919.

I expected to have a series of 100 empyemata in which no cases were operated upon by means of the old open rib resection, where nothing is done during the after care to sterilize the pleural cavity. But in order to have a series of 100 I have had to include nine such cases. These I wish to dismiss immediately, as although none of the nine died, yet this method when in use at the Massachusetts General Hospital gave a mortality of about 20%, and I no longer believe in it.

The three techniques used in the remaining 91 cases are based on attempting first to get the lungs to expand and thereby do away with the empyema cavity, and second to get the pleural cavity sterile.

The methods used were:—(1) Dr. Lilienthal's operation, (2) the Carrel-Dakin technique, (3) the closed suction method.

In 14 cases Dr. Lilienthal's operation was performed with extremely good results, 12 of them doing very brilliantly. All were kept in the hospital until entirely healed, the shortest case staying 18 days and the longest four weeks. One of the remaining two cases returned to the hospital after 10 days with more pus in her chest. She cleared up rapidly with the use of Dakin's solution. The remaining case was a real hard-luck story. It was a baby. When I saw him on the afternoon following operation he was sitting up eating his supper. The following day he was playing in his crib and was in excellent condition. The next day while I was making a visit he had a convulsion, became paralyzed on one side and died that afternoon.

It is only fair to say that these cases were carefully selected as being suitable for the Lilienthal operation. They were all pneumococcus cases and did not give the appearance of being very septic. They were all operated on under gas oxygen and the lung expanded beautifully. I thoroughly approve of this method in certain selected cases, but never in streptococcus cases or those empyemata following influenza.

I prefer to sew up the original incision tight, as it is never made at the bottom of the pleural cavity, and to introduce at the bottom of this cavity an air-tight suction arrangement. I believe this makes the drainage more completely air tight than a cigarette wick at either end of the incision, and one can use Dakin's solution later if necessary.

This group had, as you have seen, one death in 14.

Only 11 cases have been operated on by the Carrel-Dakin technique, and the results were not very brilliant. The best case healed up and left the hospital in three weeks. When finally healed, some of the other cases had a considerable cavity, but one which was sterile.

We tried not only putting Carrel tubes into the cavity through the original incision but also through a second incision at the top of the cavity, but as we found that the top was often under the scapula, any movement of which tended to pull the tubes out, we finally gave this up.

We also gave up the secondary suture of the wound, as in several cases the empyema recurred, and we prefer to continue irrigation of the sinus until it is closed.

At present I am using this technique only in the small encapsulated empyemata.

Eight cases of this group of eleven finally got well, the shortest being three weeks, the average six to seven weeks, and two have not healed up even after several months. Two cases developed secondary encapsulated empyemata. These are the only two in the whole series which did. One case died. This was a man in the 50's, whose condition I thought better than it turned out to be, and resected a rib under gas oxygen. He promptly developed pneumonia on the other side and died in four or five days. I consider his death entirely my own fault, as I should have done the operation under local anesthesia.

If with this technique we could sterilize the cavity and close the wound in a week or 10 days and then have the lung fully expand,—I should consider it excellent,—but so far we have been unable to accomplish this.

The remaining 66 cases were operated on by a closed air-tight method; the success of this method and the method itself are my main reasons for bringing this subject before you.

For years I had been dissatisfied with the old resection of a rib and open drainage, as the lung could not expand readily against positive pressure, and the various valve apparatus did not appeal to me. About two years ago, Dr. Meyer, in reading a paper in Boston on bronchiectasis, dropped a hint about drainage of the pleural cavity by this method. At about the same time an electrical suction pump was perfected by a Boston surgeon's chauffeur and we began using it on other surgical cases. I

was interested to try it in the acute empyemata.

The principles of this treatment are based on first, early operation; second, the necessity of allowing the fluid to escape slowly; third, the sterilization of the pleural cavity by means of Dakin's solution; fourth, the suction of the pleural cavity; and fifth, the prevention of a considerable pneumothorax.

I realize that many surgeons believe in repeated aspirations first and delaying operation until there is thick pus. I should agree with them provided there were no other technique than that of the open drainage. But with an air-tight closed method I believe in early operation. This is done when the fluid aspirated is turbid, contains 60% or more polynuclear leucocytes and the organism causing the empyema. In delayed operation there is more danger of septicemia, pyemia, and pericarditis.

I believe it is necessary in many cases in which there is a very large amount of fluid in the pleural cavity to allow it to escape slowly, as when the fluid escapes very rapidly there is danger of collapse and even death.

Sterilization of the pleural cavity is done by means of Dakin's solution and its progress is, of course, determined by bacteriological count.

The suction apparatus is of great aid in the irrigations.

When the cases—in which the technique has been carefully carried out—are sterile and the sinus closed, the x-ray has failed to show any pneumothorax at all in many cases, and in others a very small one in the space between the diaphragm and the costal border.

The operation has always been done under local anesthesia,—with the exception of two or three children,—but it has been done with many babies a year or more old with perfect ease. It does not take more than five or six minutes and there has never been any shock to it. A large trocar—the cannula of which will admit a 21 or 22 French catheter—is introduced between the 8th and 9th ribs after a small incision has been made through the skin and usually the external intercostal muscle. The catheter, being shut off with a hemostat, is rapidly slipped through the cannula.

At this time the cannula is filled with fluid rushing out, and I do not believe any air can enter into the pleural cavity. The catheter is sewed in tight and connected with a long rubber tube going into a bottle containing water, and the end of the tube is kept under the surface of the water.

The success of the after-care depends on intelligent individual treatment. The fluid is allowed to escape slowly, this being regulated by the hemostat. When the fluid has stopped coming out by itself, which in large empyemata may take 24 hours, the suction pump is attached and the cavity sucked dry. At this time Dakin's solution irrigations are started and these are kept up every two hours. Needless to say, the private patient with specially taught nurses makes a more rapid convalescent than the ward case in a large general hospital.

It is probably safe to discontinue treatment and consider the case sterile in the pneumococcus cases when the bacteriological count is one organism per five or six fields, but I prefer to continue treatment for a few days more until there are none. This applies not only to the cavity but also to the sinus. It is proved by both the count and culture. In the streptococcus cases, I believe, it is necessary to get rid of every one before stopping treatment.

I do not want to give the impression that I consider this method a final cure for every acute empyema, as occasionally there is a case whose count, at the end of four or five weeks, stays up as high as four or five organisms per field—just why I do not understand. In these cases a rib has been resected under gas oxygen and a very small cavity has been found. When packed open with gauze it has promptly healed up. I have found that the best rib to resect is the one just above the sinus, although it is the 8th, as the diaphragm has always been found up at the level of the drainage.

I can speak definitely only of the immediate results, but I feel morally sure that cases proved to be sterile and that healed before leaving the hospital will not recur.

Of the 66 cases 54 got well without further operation; six needed a secondary operation and promptly healed up. Two streptococcus cases became chronic and left the hospital with small drainage tubes. Four cases died, three of which I should not have touched and would not have had I been anxious of my statistics. Two were streptococcus hemolyticus cases, both unconscious, and I was overpersuaded by their families. The other was a baby less than a year old, with double pneumonia and practically no chance. The fourth death was a tragedy. He was a man with double

broncho-pneumonia following influenza, and was delirious. For 10 days after operation he did well, his pneumonia cleared up and his delirium ceased. I thought him well on the road to recovery. Unfortunately, the suction pump was started and allowed to run for an hour and a half with no one in the room. At the end of this time he was in a state of collapse and died in three or four hours. There was no autopsy performed, but I presume he had some pleural reflex that tended to inhibit his heart action.

As I said in the early part of this paper, I cannot tell you how many cases became chronic. But up to the present time only one case has returned to the hospital, and this case got well without further operation by means of Dakin's solution.

The series was remarkable for its freedom from complications following operation. Three babies developed bronchopneumonia that gradually quieted down. One case had an obscure pleural reflex during his irrigation with Dakin's solution. This man had been irrigated for three weeks and then suddenly—out of a clear sky—collapsed and nearly died while being irrigated, the irrigation being done exactly the same way and by the same man as it had always been done. However, he finally recovered.

In some cases the Dakin solution set up violent coughing; this usually quieted down very quickly, but in several cases it was found necessary to discontinue it. A few patients complained of immediately tasting Dakin's as soon as an irrigation was started, this undoubtedly being due to a pleuro-pulmonary fistula. One case had an acute appendix during his convalescence. This was operated on and he recovered all right. No case had any severe bleeding from the pleural cavity, but in many the irrigation was tinged with blood from time to time; and no case developed pericarditis, septicemia, or pyemia.

Quite naturally the six patients who died in this series of 100 cases are the ones who have left the most vivid impression on me. Two of them, I am convinced, should not have died. In one of these death was undoubtedly due to the bad management of the suction apparatus, and in the other case, if the closed method had been done under local anesthesia, I believe the patient would be alive today. I feel that the death due to cerebral complication was unavoidable, and probably that of the infant with double pneumonia could not have been prevented. The remaining two who died were moribund when seen.

There may be some one here who is skeptical as to the efficacy of this method, and to him I would say that even if it has not cured every case, yet it has a distinct contribution to make towards ultimate recovery, as it will often tide a patient over his extreme septic condition, and any operation that is needful can be done later on.

In conclusion I would emphasize my firm belief in early operation by means of a closed air-tight suction technique done under local anesthesia and followed by the intelligent use of Dakin's solution.

ENCEPHALITIS LETHARGICA.

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ENCEPHALITIS LETHARGICA is an infectious disease of the central nervous system, usually of sub-acute onset, of which the predominant clinical characteristics are lethargy or somnolence and paralysis of certain cranial nerves, especially the motor oculi and the facial.

While undoubtedly existent prior to 1917, the affection has aroused universal attention on account of its prevalence in epidemic proportions in Europe and America in 1917 and 1918, not only in civil life, but also among the troops of the Allied Forces. It is probably identical with the affection described by the Italians under the term "Nona," which prevailed in 1890 in various parts of Europe.

The evidence at present at hand indicates that the disease is due to an infectious agent, not as yet identified.* It is frequently preceded by one of the common infectious diseases, especially parotitis. Whether this is more than a coincidence is questionable.

Incidence. Seasonable: The affection, in its epidemic form, usually occurs in early spring, the months of March and April apparently showing the great prevalence, but sporadic cases may appear at any time of the year. Sex:

*Since the above was written Loewe and Strauss claim to have isolated a filterable organism, from the nasal washings and mucous membranes of humans, and from brains of animals, that produced in animals lesions typical of this disease. Cultures were carried to the twelfth generation. Cultural methods were identical with Noguchi's method for spirochetes. *Journ. A. M. A.*, 1919. Vol. LXXIII, p. 1056.

It shows no special sex incidence. Age: It is common in childhood, but manifests no particular incidence for that period of life. It occurs in nursing infants.

Clinical Symptoms. The affection is usually characterized, especially in children, by a prodromal period of from one to five days, occasionally considerably longer. The prodromata consist of headache, vertigo, blurred vision, muscular weakness, and a slowly increasing somnolence or lethargy. In many cases early diplopia is complained of. General pain or occasional abdominal pain may occur. Nausea and sometimes vomiting are among the early symptoms. Muscular twitching or tremulousness is also occasionally seen in this stage. In a small minority of instances the early somnolence is replaced by restlessness or irritability of the sensorium and a tendency to delirium exists. Photophobia and complaint of pain in the eyes are not infrequently a source of discomfort in this early stage.

Of interest in the prodromal or pre-prodromal period is the occurrence, occasionally, of light inflammatory affections of the mucous membranes or of the conjunctivae.

Usually these early symptoms very gradually merge into the fully developed stage of the disease, but occasionally a period of distinct amelioration of the phenomena intervenes before the full unfolding of the clinical picture takes place.

As this latter stage is approached the patient will usually be found to have a slight rise of temperature, 99 to 101. This is apt to increase to 102 or 103, and to last from three to six days. Sometimes the maximum is more quickly reached and as quickly subsides, with perhaps occasional subsequent evening exacerbations for a time. There are exceptions to this rule, in which the fever may be pronounced, or may endure for many days, but this is not common. Whether afebrile cases occur is doubtful, and it is probable that the rise of temperature in some cases is very early and transient, and therefore overlooked. It is in this early febrile period that fleeting cutaneous eruptions, usually erythematous, but sometimes petechial, purpuric, or even papular, are occasionally seen. They may lead to error in diagnosis. Desquamation may follow these eruptions.

With the advent of the fully developed stage of the disease the somnolence and lethargy reach the degree in which the patient can still be aroused but immediately lapses again into stupor if left to himself. A striking feature of this period is the mask-like facies, which has been compared to that seen in paralysis agitans. This is evident even when the patient can be induced to speak, and when at rest the facial lines are quite obliterated. At this stage, and sometimes earlier, the speech becomes slow, monotonous, nasal, and often slurred or hesitant. With the increase of stupor the patient lies expressionless and immobile and on passive movement considerable rigidity in the limbs and posterior cervical region may be present. A catatonic condition has been reported in a number of instances (flexibilitas cerea) but this is not a frequent feature of the syndrome. The stupor may deepen into actual coma, although the majority of cases do not reach the stage from which they cannot be aroused.

In approximately three-quarters of all cases the characteristic palsies of the third and seventh nerves occur and are prone to appear in this period, towards the end of the first week or in the early part of the second week of the disease. Their onset is usually gradual, and as a rule ptosis is the first sign indicating implication of the third nerve nuclei, either unilaterally or bilaterally, the involvement usually spreading to the other ocular muscles supplied by the third nerve, with resultant strabismus (external) or subjective complaint of double vision. The sphincter iridis may or may not show involvement. This implication of one or both series of oculomotor nuclei may be the only focal symptom, but in half of the English cases, both adults and children, occurring in 1918, this was associated with single or double paralysis of the facial nerve as well.

Both the ophthalmoplegia and the facial paralysis may clear up on one side before appearing on the opposite side. The facial involvement is often preceded by considerable twitching in the facial muscles. Either form of paralysis may clear up and then recur, and both may be late symptoms, occurring after the disease has existed for several weeks. Nystagmoid unsteadiness of the eyeballs is sometimes seen.

The fourth, the sixth, and the twelfth cranial nerves may also be implicated, and one case of involvement of the eleventh is reported. The frequent presence of nasal voice, nasal regurgitation and difficulty in swallowing and articulation, indicate involvement of the ninth

and tenth cranial nerves as well. In fact practically all of the motor cranial nerve nuclei are susceptible to the disease. About one-fourth of the cases do not present cranial nerve implication. Such cases, however, are often equally severe in their other clinical manifestations. They are also the cases in which the diagnosis is often difficult.

As might be expected in an affection so prone to involve the region of the crura, pons, and medulla, cases occur in which some interference in pyramidal transmission is evident. Instances are surprisingly infrequent in which anything like a spastic paralysis appears, and this is in striking contrast to the common results of ordinary acute encephalitis. That pyramidal transmission is to some extent interfered with is, however, evidenced by the greater or lesser degree of general muscular rigidity often seen and by the retention of urine and exaggeration of deep reflex activity occasionally present. Constipation almost invariably prevails and is obstinate. Late in the stage of coma, when it occurs, both rectal and bladder incontinence may supervene. Tremor is a conspicuous feature of most cases, and may be an early and constant phenomenon. More irregular involuntary movement of choreic or athetoid character may occur.

The affection is conspicuously free from signs of meningeal irritation. Beyond cervical rigidity and the tâche cerebral, both of which are infrequently present, the clinical picture presents no distinctively meningeal phenomena. Kernig's sign is not found as a rule. Optic neuritis has not been observed. Slight engorgement of the retinal vessels has been noted in one or two cases. Sensory symptoms, other than the pains above referred to, have been absent except in a few instances, all in adults, in which the phenomena point to a polyneuritis. The cerebrospinal fluid is almost invariably clear, rarely under pressure, and rarely showing increase of albumen. In about one-third of the cases, in both adults and children, a lymphocytosis is found. In all cases where examined culturally the fluid has been sterile. Further critical examination of the fluid, with particular reference to the period of the disease at which the fluid is taken, is essential.

Course and Prognosis. The duration of the clinical phenomena is so variable and convalescence is so prolonged that it is difficult to give even an average duration for the affection. In Batten and Still's series in children the average duration of the stage of stupor was from three to five weeks. The emergence from the lethargy and the restoration of general strength is extremely slow. Eliminating the abortive cases, it is safe to set six weeks as the minimum duration of the disease and its immediate results, and in the majority of cases many weeks, and even months, may pass before full restoration to health, if it eventually does occur, is achieved. As in other forms of encephalitis, impairment of intellect, especially in children, may remain. Among other sequelae tremor and disturbances of coördination are conspicuous. The tremor may be of the paralysis agitans type or it may be of finer degree. It may be general or chiefly evident in the extremities. The ataxia is commonly of the cerebellar type, and is particularly noticeable in the gait. Considerable ataxia for finer movements of the fingers, however, is frequently present. Less often do the bulbar disturbances persist. As a rule the ocular palsies eventually disappear during the convalescence and the same is true of the facial palsy. Disturbances in swallowing or in speech may be more or less noticeable for a long time but they, too, are rarely persistent after complete convalescence. Lack of emotional expression in the face often persists for a very long time, leading to the assumption of mental dulness, which is not justified by the facts.

Mortality. The mortality for all cases appears to be about 20%.* It reaches its maximum in the period between thirty and forty years, when it is four times as great as it is in the first decade of life. This is a striking contrast to anterior poliomyelitis. Until a much larger number of cases in childhood are on record it will be impossible to form any accurate conception of the mortality for early life. The shortest duration of a fatal case during the English epidemic was two days, in a child of twenty-one months, the longest duration before death was forty-nine days, in an adult of thirty. Death results from bulbar paralysis or from broncho-pneumonia. It is sometimes preceded by convulsive twitching. Marked increase in intensity and frequency of delirium, and deepening coma are to be regarded as unfavorable signs as a rule, but this is not necessarily the case. Cheyne-Stokes respiration is always an unfavorable symptom.

* Much higher figures than this have been reported, but based on too few cases to be reliable.

Pathology. Macroscopically but little may be seen. More or less hyperaemia may be visible, here and there in the meninges. In the region of the interpeduncular space, however, a limited area of meningitis is usually present. Occasional areal patches of similar character may be found elsewhere. On section of the brain and especially sections through the basal nuclei, peduncles, pons, and medulla, punctate hemorrhages are to be seen. Occasionally larger areas, apparently of confluent hemorrhages, may be visible. Microscopical examination shows these hemorrhages to be chiefly of venous origin. Intense hyperaemia of the vessels and perivascular infiltration with lymphocytes, plasma cells, and fibroblasts is present. This condition is usually especially pronounced in the region of the peduncles and in the pons (floor of the fourth ventricle). Marinesco, who examined specimens from several of the English cases, states that there was no obvious necrosis of the vessel walls to which the hemorrhages could be ascribed. There was intense cellular infiltration of the adventitial wall of the vessels. Also, but more rarely, there were areas of cellular infiltration of the gray matter of the pons. Miliary hemorrhages were very numerous in the neighborhood of the floor of the fourth ventricle, in the formatio reticularis and in the gray substance about the Sylvian aqueduct, the locus coerulens, substantia nigra, etc. The vessels of the meninges in the region of the pons and medulla showed similar inflammatory conditions. Some capillary hyperaemia was found in certain areas of the cerebrum, sometimes associated with hemorrhages in both meninges and gray matter, but these were of minor degree when compared with the process at the base.

In one of Marinesco's specimens there was marked evidence of meningomyelitis of the upper cervical cord. In another the process commenced at the level of the pyramidal decussation and the cord was unaffected. In the two cases in which the cerebellum was obtainable Marinesco claims to have found profound lesions in the cells of Purkinje, no cells being found that appeared absolutely normal. They showed acromatous and degenerative changes, with some disappearance of neuro-fibrillae. Nissl bodies were entirely gone, the cytoplasm pale, usually homogeneous, occasionally slightly granular. He considers these changes primary and not secondary to lesions of the axones. Golgi's cells were but little affected. The small vessels of the cerebellar cortex were hyperaemic, the endothelium, here and there, somewhat swollen, but adventitial and perivascular infiltration was practically absent both there and in the meninges covering the cerebellum.

Differential Diagnosis. While in the literature the clinical phenomena have been confused with botulism, there is no justification for such association, for the two conditions have nothing in common except the occurrence of cranial nerve palsies. It is unnecessary, therefore, further to consider the matter here.*

The nearest analogue to this disease, from a pathological if not strictly from a clinical point of view, is anterior poliomyelitis superior. Encephalitis lethargica appears almost exclusively in the spring. Its maximum incidence is in middle life. Its maximum mortality is in adult life. It is characterized at its earliest onset by gradually increasing stupor, without signs of meningeal irritation, or when this early apathy is replaced by restlessness, marked mental disturbance, especially in the emotional sphere, is present. Speech disturbance is an early and characteristic feature of the affection. It is not associated with flaccid paralysis of limbs or of body muscles, even when evidence of involvement of bulbar nuclei has appeared. The cranial nerve palsies appear gradually, slowly reaching their maximum, even receding at times completely before that maximum is reached, to recur later on, or to appear in some other cranial nerve, not previously affected. The palsy shows a tendency to involve the cranial nerves in pairs, both motor oculi or both facials, although not always simultaneously. The palsy is often incomplete and shows an almost uniform tendency to gradual recovery, although the latter may be slow. Residual permanent paralysis is rarely a feature of the disease. Anterior poliomyelitis is epidemic in the late summer and fall, although sporadic cases may occur at any time. Its maximum incidence lies in the first two years of life. Its maximum mortality is in childhood. The paralysis is prone to appear with little or no impairment of the sensorium, and when such impairment does appear, as it not infrequently does in the bulbar type, it develops relatively quickly and often with distinct evidence of meningeal involvement. When the latter does not appear

* The reader is referred to the author's paper on "The Neurological Aspects of Food Poisoning," BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxvi, No. 12, pp. 413-422, March 22, 1917.

the period of sensorial impairment is not only relatively sudden but usually brief as well, not progressively more and more marked, as in the disease we are considering. The paralysis appears suddenly and usually reaches its maximum degree in a few hours, if not immediately. The cranial nerve palsy when it occurs is usually associated with coincident flaccid paralysis in some one or more muscle-groups of the extremities or body. Disturbance of speech is absent. Residual permanent paralysis is almost invariably present. It is very probable that further study of the cerebrospinal fluid may reveal characteristics that will also aid in differentiating the two diseases, but our knowledge at present is very imperfect concerning the nature of the specific character, if any, of the fluid in encephalitis lethargica. A lymphocytosis in the fluid may occur in this disease but it is more often absent or but slightly marked, compared with that seen usually in poliomyelitis.

In the writer's opinion, much more difficulty will be experienced in differentiating the affection from tuberculous meningitis. There is close similarity in the clinical features of the two diseases. Indeed, even with the help of spinal puncture, it may be impossible, and only a post mortem may be capable of deciding the doubt. I have records of instances of tuberculous meningitis that in onset and course resemble this disease. About a third of the cases in which a spinal fluid examination has been made have shown a well marked lymphocytosis and two revealed a marked excess of globulin. These two factors therefore are of no assistance in differentiation. Of course the discovery of tubercle bacilli would settle the question. The difficulty would occur, however, only in the exceptional case of tuberculous meningitis, for in the average case the meningeal phenomena soon become so conspicuous that suspicion would naturally turn towards this disease. In the early stage of the process, in a certain number of instances, however, the meningeal phenomena may not be evident. Most instances of tuberculous meningitis terminate within three weeks of the onset of the clinical signs, but so also do a few of the instances of this form of encephalitis.

Treatment. No therapeutic measures are yet known to be of any value in influencing the course of the disease. The treatment consists only in meeting temporarily such special demands in the way of hygiene, diet, and nursing as the exigencies of the case call for. Retention of urine should be particularly kept in mind, also the danger of decubitus, and pulmonary complications.

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TYPES OF SYPHILITIC DISEASE TREATED AT A PUBLIC CLINIC.

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WHILE it is possible further to tighten the strands in controlling the spread of syphilis, what is being done at the present time in combating the disease is laudatory, in that all cases being treated at clinics coöperating with the State Department of Health are given as thorough treatment as possible. The great factor in treating syphilis at these clinics, or anywhere where the means of proper treatment is at hand, is coöperation by the patient in coming for treatment, and carrying out instructions given. When a patient is told that in order to derive maximum benefit of treatment it is necessary to come to the clinic regularly, and obeys, invariably all goes well.

Recalcitrant and neglectful patients are followed up and, in case of open lesions, forced to report for treatment. Cases not reportable are likewise communicated with, by letter or visitor, and advised to come for further treatment. If it can be impressed upon the patients that their coöperation is absolutely essential in order to treat their disease effectively, half the battle is won; otherwise it is a gamble—though it is surprising how many patients come to different clinics many years after receiving their infection, giving a history of indifferent or scant treatment, and presenting a negative Wassermann repeatedly. Compiling lumbar puncture

data on these cases ought to be of value in that many of them show cerebro-spinal involvement. It is far from the rule, however,—these rapid cures under the old vogue treatment,—and perhaps best explained by individual resistance to the disease and attenuation of the spirochaetal strain.

Where many hundreds of cases are treated during the year, all types of individuals, stages, and forms of the disease are encountered. And quite startling it is when the disease is met with in a person of apparent good health, and coming for treatment for a different ailment; the physician becomes hardened to the oftenness of the happening, but to the individual it is a different matter. Cases of this sort come under the hereditary forms of the disease, where the infection, through some factor or other, remains dormant, or where acquired syphilis manifested mild or fugitive symptoms in the early stages, or where the symptoms were ignored or missed by the physician.

The acquired form of syphilis is the predominant and formidable type—the one which the world has to grapple with, for if there were no acquired syphilis there would be no inherited syphilis. And it is the often insidiousness and vagueness of the disease that make the combat between medical science and syphilis more prolonged. It is not unreasonable to predict that eventually the spirochaete of syphilis will be handled as effectively as the typhoid bacillus—even allowing that syphilis is an entirely different type of disease pathologically than typhoid fever.

In the acquired form of the disease, the type that is the most agreeable to treat is the primary stage of the infection, because it is in these cases that the most prompt results of treatment are obtained. These cases usually appear at the clinic in the stage of full florescence, with accompanying inguinal adenitis—the lymphatic tide-gates battling against the ingress of the spirochaetes. Intensive treatment given at this time with arsphenamine and mercury more readily destroys the spirochaetes that have passed the lymphatic barriers into the general circulation, and subdues the otherwise unmolested migration of proliferating spirochaetes. The disease becomes nipped in the bud, and more readily controlled.

That arsphenamine has a destructive power against the spirochaete of syphilis has been experimentally substantiated, if we accept as evidence the self-inoculation performed by Dr. Magian, chief of the French hospital at Manchester. Inoculating himself with a little serous fluid from a syphilitic chancre, he received in less than an hour an intravenous injection of .6 gm. of arsphenamine. No local or general symptoms followed, and the Wassermann test applied once a month remained constantly negative.* If one has the good fortune to treat a patient presenting a dark field positive initial lesion before the blood becomes positive to the Wassermann test, it often remains negative. Hence the urgency of treating these cases as early as possible.

A number of discharged soldiers, contracting the disease through venery with diseased panderers, have come to the clinic for treatment during the period of demobilization, all manifesting florescent primary lesions, accompanied by positive Wassermann blood tests. Without exception, under intensive treatment with arsphenamine and mercury, they all showed negative Wassermann blood tests after receiving from six to ten intravenous injections of arsphenamine, two each week, and one intra-muscular injection of mercury salicylate a week. Being tractable young men, possessing an average degree of intelligence, they perhaps will faithfully continue their treatment until told they are cured. The primary stage of the disease is the most amenable to cure, and the older the infection becomes the longer it takes to cure. This sounds elementary, but it does no harm to emphasize.

It is readily apparent that placing all cases of syphilis manifesting primary lesions—and in the period of secondary incubation—under effective treatment with arsphenamine and mercury markedly lessens the danger to the community, as the primary lesion rapidly melts away, and the general constitutional symptoms are usually forestalled. The bodily resistance doesn't suffer the handicap of combating a marked general invasion of spirochaetes, with accompanying toxemia and resulting cachexia, nor have proliferative changes taken place in the tissues, and the road to cure becomes smoother to travel.

The secondary erythematous and papular eruptions are usually amenable to treatment, rapidly fading away, as a rule, and the success in obtaining a negative Wassermann blood test depends upon the degree of tissue invasion, the

* Bulletin de l'Académie de Médecine, Paris.

virulence of the infection, the accessibility of arsphenamine and mercury in reaching the spirochaetes, and the resistance of the individual. When the disease has progressed to present secondary symptoms, the cerebro-spinal system must be ruled Wassermann negative before one can be certain that a cure has been obtained, even though the individual has repeated negative Wassermann blood tests.

The early stage of secondary syphilis, in which the individual is of fair nutrition and of good habits, usually progresses to a clinical and serological cure when the patient coöperates in receiving treatment; lapsing for prolonged periods in this stage of the disease is like staking an entire fortune on the turn of a roulette wheel—possibly sacrificing a cure. The difficult types to cure are the ill-nourished, alcoholic, dissolute, or where the disease is firmly implanted in the tissues. But wonders are wrought with the poorest of human material, and the means of mercury, arsphenamine, and potassium iodide, judiciously given. And to these chronic secondary cases that finally succeed in obtaining a negative Wassermann, the victory of treatment—if it may be so termed, is to them what the sight of land is to a shipwrecked sailor.

Alcoholics, persisting in imbibing, thinking that it does them no harm, are advised to abstain absolutely, and are informed that if they persist they will cheat themselves out of a cure. Prohibition will prove an aid to the physician, and to the patient, in these cases. A large percentage of persistently active syphilides are found among those who have been persistent users of alcoholic liquors,—this disease indeed bearing testimony that alcoholic indulgence lowers vital resistance. It will be interesting to note the effect of prohibition upon the incidence of syphilis as time progresses.

Many a well-intentioned individual has contracted syphilis while indulging in a hurley-burley time with wine, women, and song; alcohol lowering inhibitory control, the joy emotions run rampant, and as an aftermath a primary lesion of syphilis appears. And many an innocent female has experienced the tragedy of the automobile, the cabaret, and the bawdy-house, having succumbed to the charms and plans of an infected roué, that used alcohol as a means to gain the end. And so the demise of John Barleycorn will be a great help to the syphilologist in treating the alcoholic type of patient, and indirectly lessen the incidence of syphilis in the community.

Accidental syphilis, innocently acquired, is a sorrowful thing, coming, as it does, without moral transgression, but from media which have been in contact with syphilities, or from the act of kissing those infected with the disease, where open lesions prevail. Quite often it is one of the family who has the disease and, having open lesions, contaminates whatever comes in contact with him. Such tragedies will become fewer as the strands become tightened in controlling the spread of the disease by reporting infectious cases and properly treating and sterilizing the infectivity of the open lesions.

The recidivist or relapsing type of patient is another contention clinics have to deal with: failing to coöperate in their treatment, the neglect is often followed by a return of manifest symptoms in the later stages; it then dawns upon many that it is not wise to be foolish. Another relapsing type presents where the individual had been formerly treated a number of years previous by a physician and told, after a more or less continuous course of treatment, that a cure had been attained. Many of these cases had been treated by capable physicians, and their judgment was no doubt based upon clinical evidence, physical findings, and empirical procedure; the present day instruments of precision were not then at hand.

The chronic, tertiary types of infection are present in large numbers, human evidence that many escape in receiving benefit of a thorough course of treatment, through some circumstance or other; it might have been their habits or neglect of treatment that hindered their cure, or insufficient treatment, lack of combating resistance or virulence of the disease. As the treatment of syphilis progresses such sequences will become fewer, through the more thorough treatment of the disease in the earlier stages.

The neurological types of syphilitic disease represents the end-journey of the spirochaete, and present the paretic, the tabetic, the epileptic, and those with combined, system, segmental, or focal degenerations; also the pre-degenerative or toxic types suffering from neurasthenia, headaches, spasms, neuralgia, and other irritative symptoms of syphilitic poisoning. They all receive their share of attention, and, like the age-worn ship that is made fit for service, all that is possible is done for them to ward off or delay the final day.

The hereditary form of syphilis presents itself at all ages and in all classes of society, though at charitable clinics it is the poor and middle classes that furnish the patients. The infantile type may manifest no symptoms, but brought to the clinic on account of one or both parents having the disease, the diagnosis is made by a positive Wassermann test. Then there are cases of apprehension where one or both parents having had the disease and received effective treatment, fear that the new-born, or other children may have inherited the disease; and the Wassermann test shows negative findings. Then there are family groups where one or more children will inherit the disease and others escape. Treating the expectant mother, suffering from syphilitic disease, is one of the most important responsibilities confronting the physician, either in public clinics or private practice, and such cases should properly be referred to a syphilologist, because active treatment with arsphenamine and mercury, guardedly given, markedly lessens the transmission of the disease from mother to child.

The possibility of hereditary transmission of syphilis often arises when an individual, having had syphilis before marriage, discovers while treating for some other ailment that his disease was not cured, notwithstanding the fact that he was told so. Then it is that the pangs of anguish dart through him, and he becomes possessed with a thousand fears. What of his wife! —his children! Are they also infected? He may suddenly become morose and suicidal: the world is a forlorn place to live in. It is here that the physician, by expending a degree of human interest and encouragement works wonders; it costs nothing, and often brings sunshine on many a cloudy day. And happy is the patient when he is told that wife and children have negative Wassermann tests.

The contrary often prevails when wife and children are found to have the disease; separation often occurs, and divorce proceedings are begun. A degree of diplomacy and tact on the physician's part can often calm the turbulency and upset emotions and the situation resolves itself into making the best of things. Again, a case of hereditary syphilis may be brought to the clinic for treatment; examination and a Wassermann test show the condition syphilitic; the mother is informed; she denies ever having the disease, but shows a positive Wassermann; the father is advised to come for examination; he also gives a positive Wassermann blood test, and may present sign-marks of the disease. Usually one of the parents is able to recall a moral transgression, followed by symptoms.

Another type of infantile hereditary syphilis presents with manifest symptoms, and the physical and serological findings are dove-tailed into a parental history of syphilis; marasmus, malnutrition, fretfulness, snuffles, visceral lesions, dermatoses, or other symptoms, singly or grouped, are found on examination. Later on, the more advanced lesions appear, such as necrosis of the nasal bones, osteo-chondritis, paralysis, crow-foot scarring at the angles of the mouth, Hutchinson's teeth, disturbance of hearing, interstitial keratitis, dactylitis, and a train of other symptoms, appearing in early childhood, pubescence, or youth. Born with their heritage and handicap, the problem is to alleviate the symptoms as much as possible with the form of treatment indicated, and to rejuvenate and cure.

As the treatment of syphilis progresses, acquired and hereditary tragedies will become fewer as the disease becomes better understood, and means to check its spread are more universally adopted, for the itinerant carrier may be a danger to a distant community. The following points pertaining to the prevention, prophylaxis, and treatment of syphilis are of paramount importance in attempting to reduce the prevalence of the disease: reporting of primary and open lesions; venereal prophylaxis; syphilis-free marriage; educational propaganda-lectures, printed vehicles, and the cinema; following up the syphilities lapsing in treatment; coöperation by the patient while under treatment; research work in syphilology; and educating the physician how to treat syphilis properly, including doing a Wassermann test in all doubtful cases of disease—for most any unresponsive condition might be caused by an obscure syphilitic infection. There is a mission to accomplish, regardless of prims and prudes.

THE SURGICAL RISK AND PREOPERATIVE TREATMENT.*

By Frank H. Washburn, M.D., Holden, Mass.

The operation is not all of surgery. Rather it is often a turning point or crisis in someone's disease history and led up to, or should

* Read before the Wachusett Medical Improvement Society, July 2, 1919.

be, by study of the symptom complex produced by the lesions present and of coincident conditions vitally affecting the individual's physical being. Perhaps it may be the outcome of a diagnosis resulting from painstaking work, extending over periods of possibly weeks or even months, of some physician, who only too often gets too little credit for a happy result, while the operating surgeon sometimes reaps the major praise. In passing, I wish to say it is the latter's duty to call attention, whenever it may become his privilege, to the worth of this medical service that due estimate of value may be placed upon the physician's work. If a surgeon points to a large series of cases of operation for, *e.g.*, acute appendicitis, without a fatal result, it may properly reflect some credit upon his work, but does it not speak for infinitely greater credit to the medical profession of his community whose members first make the diagnoses and whose prompt advice results in the saving of lives? That phase of the surgeon's duty we wish to discuss, however, has to do with his relation to the patient as a surgical risk.

If the time ever existed, it has long since passed, when surgeons were justified in operating without serious effort having been made to arrive at definite diagnoses of diseases under treatment and of conditions affecting individual risks, except in such cases as were acute exigencies. While exploratory procedures, at the present day, are occasionally legitimate or desirable and perhaps rarely imperative, with better knowledge of the living pathology, better instruments of diagnostic precision and improved clinical and laboratory methods, they should be less often resorted to. By this I do not mean that the female breast, *e.g.*, should not be radically amputated without absolute knowledge of whether its contained neoplasm is malignant or benign, nor that medical diagnostic acumen should be expected to be infallible. Operative surgery, however, is rather serious business and exploratory incision should not be undertaken merely because it is the easiest method of finding out the nature of an existing lesion; and while infallibility is a divine attribute, only earnest and painstaking effort may be the practice of any one of us.

The paramount preoperative consideration, then, is diagnosis, accurate as consistent with average medical ability. Team work is essential in diagnosis as well as in operative technique. Medical science is constantly broadening and the demands on medical men are such that none can even approach a mastery of the whole. We should never hesitate to invite the aid and advice of those who have had special opportunity to acquire special knowledge, whenever required. The help of the neurologist, the oculist, the gastro-enterologist, the lung specialist or the syphilologist may be essential. Roentgenological examinations are requisite to accurate diagnosis in a large proportion of surgical diseases. While x-ray technique is ordinarily not beyond the ability of any who wish to take it up in connection with practice, certain studies should be in the hands of the expert technician and interpreter.

Accuracy in diagnosis is often possible only by means of laboratory aids. The *modus operandi* of some of the essential laboratory tests are too time consuming and too difficult for the average physician or surgeon, and the pathologist must be added to the team. When a fully equipped laboratory is unavailable, and expense is an obstacle, the State will make Wassermann tests, complement fixation tests, tissue examinations, etc. However, guinea-pig inoculations, blood counts, urinary examinations, the examination of stomach contents, feces, etc., may be satisfactorily done by anyone with enthusiasm and energy. The time-honored methods of physical examination, inspection, palpation, auscultation, etc., are still unsurpassed in importance. Careful history taking, too often slighted, is frequently the key to surgical diagnosis. Histories should be carefully recorded for subsequent study.

The diagnosis having been made by whomsoever it may have been, on the surgeon's conscience rests the responsibility of operation, and he should be satisfied with the diagnosis, if not with its completeness, with the indications, before procedure. He must either check up the diagnosis, if made by others, with his own knowledge or have a conscientious confidence in the team or individual who furnishes him the indications for procedure.

Second in importance to diagnosis, is estimation of the surgical risk. If the operation is one of necessity, while the knowledge of an impaired risk would not usually deter operation, it might influence the preparation, operative method, anesthesia, etc. For example, a high blood pressure or delayed blood coagulation time should cause one to be especially on his guard against hemorrhage; the presence of gly-

cosuria might influence a surgeon to choose gas-oxygen, or perhaps local anesthesia in preference to ether; or poor kidney function would indicate bladder drainage only, rather than complete prostatectomy at one sitting.

The whole body should be examined, noting skin and appendages, mouth, including teeth, gums, throat, etc.; lymphatic system, heart, blood vessels, lungs, abdomen, back, genitals, pelvis, and nerve reflexes.

General anesthesia should never be administered without a chemical examination of the urine, including tests for the acetone bodies. Microscopical examination may not be necessary except when indicated. Test for blood coagulation time and usually a hemoglobin estimate is called for. In some cases, Wassermann tests, white or red counts and differential counts are indicated, but a waste of energy would result from insistence upon these as routine. Blood examinations, however, are too often neglected or left to irresponsible persons. I believe the frequent expression made by some surgeons that they place but little reliance upon leucocyte counts has resulted from the hospital custom of leaving this rather important examination to the least experienced intern. White counts are by no means infallible guides, but in our experience are of great assistance both in diagnosis and in estimating the risk.

The risk having been found impaired, if the operation is an elective one, or to be done at an elective time, every effort should be made to improve the condition causing the impairment and the anesthesia and operative procedure should be modified consistently with type of deficiency in order that unnecessary morbidity and mortality may be averted.

There are some not uncommon post-operative calamities which occasionally might be avoided by preoperative treatment and they should be kept in mind. Among the more important are acidosis, anuria, hemorrhage, shock and collapse, bronchitis and pneumonia. Certain other post-operative calamities, as far as we know, cannot be influenced to any great extent, in our present state of knowledge, by preoperative treatment, such as thrombosis and embolism, sudden pulmonary edema, acute dilatation of the stomach and duodenum, paralytic ileus, etc.

Acidosis. Surgical traumatism, and especially general anesthesia, result in the formation of acid by-products, and an existing acetonemia will invariably be increased by any known form of inhalation anesthesia. The advice that "an ounce of prevention is worth a pound of cure" is truly apropos in considering post-operative acidosis. The acetone bodies have their origin in the metabolism of fat and it would seem that when the patient is in hand for a sufficient time that much can be done by diet. It is our custom, when possible, to prescribe, for several days immediately preceding operation, a fat-poor, low proteid, high carbohydrate diet. The ingestion of large quantities of water and aqueous fluids are urged up to the hour of operation and the fasting period is made as short as possible, merely of sufficient length to insure an empty stomach (except when preparing for operations on the upper intestinal tract). All the reliable methods that may prevent shock are indicated. It seems to us that the alkalies are better reserved for the treatment of actual existing post-operative acidosis, which, by the way, we have never seen, except in diabetic cases, when proper prophylactic measures had been taken.

Anuria, as a post-operative complication, must be exceedingly rare when the patient is possessed of two normally functioning kidneys. We believe this applies even to operations upon the urinary tract, or kidney itself. It is a frightful calamity, however, and not uncommon in cases where impaired kidney function exists. It behooves us, then, to use reasonable means to ascertain the functionating capacity of these important organs, and renal function tests are called for whenever there is the slightest reason to expect this inability. In all cases the emunctories ought to be stimulated and large amounts of fluids administered. When the "phthalein output" is low, if immediate operation is necessary, care should be exercised in the choice of the anesthetic.

Hemorrhage, both operative and post-operative, is always to be carefully considered in the preparation for every operation. The history may or may not warn us of hemophilia. Too often it does not. Jaundice, high blood pressure, delayed coagulation time, and anemia, are all warnings of possible hemorrhage. Material for all the approved methods of hemostasis and apparatus for transfusion should be at hand. Many drugs have been used with a view to increasing the coagulability of blood, but they are of doubtful utility. Thromboplastin, coagulose, chloride or lactophosphate of calcium, de-

fibrinated blood, human blood, etc., may be legitimately tried.

The pre-operative measures against *shock and collapse*, beside those mentioned in considering the treatment of other mentioned calamities, are partly psychic and partly preparative for application during and immediately following operation. Suggestion plays an important part. Confidence in the whole team, pleasant surroundings, and the dispelling of fear should be aimed at. A preliminary dose of morphine, when not contraindicated, alone or in combination with other drugs, does much good. There is much that is practical in the methods of Crile, and gentleness of technique, at least, should be attempted if not his complete anoci-association procedure.

Bronchitis and Pneumonia. Except when imperative, general anesthesia should not be administered during active respiratory disease. Bronchitis, whooping cough, slight colds, etc., are indications for delay.

The patient should be kept in a well ventilated room of even temperature and be sufficiently clothed. Care should be taken to avoid chilling the body while conveying to and from the operating room. The latter should be properly prepared by arranging the temperature to a degree above 70° F. The patient's mouth and throat should be carefully cleansed for a period prior to anesthesia and he should be placed in such a position on the operating table that he will not aspirate fluids during inspiration. Only clean, and preferably, sterile inhalers should be used in anesthesia. A skillful anesthetist is of great importance.

While to speak of post-operative care is to wander from my theme, I can hardly refrain here from mentioning my conviction that a trained person, either a physician or nurse, should watch every ether patient to recovery. Among the many reasons for this is the susceptibility of the subject, at this stage, to chilling and to the aspiration of vomitus, etc., either of which may be factors in causing respiratory complications; even acute suffocation might occur.

While certain known physical defects may predispose to such complications as *sudden pulmonary edema, pulmonary embolism, gastric dilatation, ileus*, etc., except for the measures toward the improvement of those defects, when existing, there seems little one can do to prevent these truly serious happenings. While they are rather infrequent, it is uncomfortable to feel that any one of this type of disaster may visit us after any clean, even elective, operation where one may have done his best work. This is indeed the proverbial "thunderbolt from the clear sky."

It has long been customary, and deemed important, to promote a thorough evacuation of intestinal contents before any operative procedure. This and post-operative catharsis has recently been considered by many surgeons unnecessary and by some worse than useless. To our mind this sudden change of view illustrates "the swinging of the pendulum" so often observed in changing medical opinion, and we feel that, while too much importance may have been placed upon catharsis, somewhere between the two extremes lies the correct procedure.

We shall not discuss the methods of preparation for asepsis. Suffice it to say that it can hardly be too thorough.

Pre-operative treatment and judicious choice of the anesthetic has greatly reduced the hazard in operating in systemic diseases, some of which formerly furnished a high operative mortality. The diabetic frequently presents lesions demanding surgical relief and, while his glycosuria may be undesirable, we have learned that, rather than glycosuria, acetonemia is the condition most to be dreaded. Usually the diabetic can, by scientific dieting and other preparation, be made a reasonably fair risk for ordinary operations, and with appropriate technique primary healing may be confidently expected. Gas-oxygen seems to be the best general anesthetic in these cases. Joslin says, "If surgery is indicated, diabetes is no excuse for its non-performance." Again he says, "The more I see of diabetic surgery the less difference I observe in it from surgery of the non-diabetic."

The damaged heart, always a serious consideration, seldom contraindicates surgical measures which may be urgently desirable.

I am keenly conscious that I have covered my subject in a rudimentary and elementary manner, but the point I have endeavored to visualize is that the surgical operation is too serious a crisis, at least to the patient, to justify anything less than careful and serious prior consideration.

Book Reviews.

An Introduction to Neurology (Second Edition, reset). By C. JUDSON HERRICK. W. B. Saunders Company, Philadelphia and London. 1918.

In the second edition of Mr. Herrick's presentation of this subject no change in the original plan of work has been made. Realizing that the understanding of the workings of the nervous system is a difficult problem, the information contained in this volume is considered strictly as introductory. The subject matter is divided into three groups: (1) Chapters I-VII discuss the more general neurological topics; (2) Chapters VIII-XVIII comprise a brief account of the form of the nervous system and the functional significance of its chief subdivisions in general, followed by a review of the architectural relations of the more important functional systems; (3) Chapters XIX to XXI are devoted to the cerebral cortex and its functions. Commencing with a biological introduction by way of foreword to the general subject, the several chapters on the nervous functions and systems comprise a clear, concise explanation of material necessary to the student of neurology. A list of references to general neurological literature, a carefully arranged general index and a brief glossary of commonly used technical terms, as well as a great many diagrammatic plates, facilitate the understanding of this subject.

Handbook of Colloid-Chemistry. By DR. WOLFGANG OSTWALD. Translated by Dr. Martin H. Fischer. Philadelphia: P. Blakiston's Son & Co. 1919.

In this second edition, the original translation of Ostwald's *Handbook of Colloid-Chemistry* has been revised and brought up to date. The author's individual views have been left unchanged; but some errors in quotations and in mathematical formulae have been corrected, and there have been added sections presenting the important advances which have been made since 1912 in colloid-chemistry, particularly in the mechanical properties of colloids. The introduction presents the elements of qualitative colloid-chemistry analysis. Part I discusses the general constitution of colloid systems, the relations between the physical state and the general properties of colloid systems, the general energetics of the dispersoids, the distribution of the colloid state, and the concept of colloid chemistry. The second half of the book deals with special aspects of colloid-chemistry and explains the mechanical properties of colloid systems. Such problems as the relations of volume and mass in colloid, their internal friction and surface tension, and the phenomenon of movement in colloid systems and its results are considered. This volume, translated from the third German edition, is an authoritative text, and is of value to the botanist and zoölogist, the physiologist, pathologist, physician, and surgeon.

Information for the Tuberculous. By F. W. WITTICH, A.M., M.D. St. Louis: C. V. Mosby Company. 1918.

Patients who are struggling against tuberculosis will find in this volume, *Information for the Tuberculous*, suggestions and help of decided value. The author, himself infected with tuberculosis at one time, has earnestly desired to give to similar sufferers a word of encouragement and practical assistance by showing them how best to use their time and energy in fighting tuberculosis. He explains the anatomy and physiology of the normal lungs, describes the action of the tubercle bacillus and secondary organisms, and shows the processes of lung healing in a clear and comprehensive manner. The importance of rest, exercise, and proper diet are emphasized. The relative values of tuberculin and drugs, the question of surgery in cases of pulmonary tuberculosis, and the value of sanatorium treatment are carefully considered. Measures which the patient may take to control the cough, and precautions which he should observe both during treatment and after he has been cured are suggested in a straightforward and encouraging way. The author's purpose is to help tuberculous patients to help themselves, and they will undoubtedly be substantially benefited by the publication of this book.

General Bacteriology (Sixth Edition). By EDWARD D. JORDAN, PH.D. W. B. Saunders Company, Philadelphia and London. 1918.

In this sixth edition the chapter on The Pneumococcus has been entirely rewritten and that on The Meningococcus has been extensively revised and several new sections have been added, including brief summaries of present-day knowledge of infectious jaundice, rat bite fever and trench fever. As an outgrowth of lectures to students, it has become a valuable textbook on general bacteriology but does not presume to fill the needs of the advanced worker. Many references are given throughout the text which may be used by those who desire to consult more extensive elaborations of particular subjects. One chapter is devoted to the fundamental methods and principles of laboratory work and in the thirty-seven chapters into

which the subject matter is divided, the methods of studying bacteria, the effects produced by bacterial growth, the classification of bacteria, the effect of physical and chemical agents upon bacteria as well as the characteristics and growth of many specific bacilli are discussed in a careful manner. The book is a good textbook and reference book for the general scientific student and is well illustrated throughout.

The After Treatment of Wounds and Injuries. By R. C. ELMSLIE, M.S., F.R.C.S. Philadelphia: P. Blakiston's Son & Company. 1919.

In *The After Treatment of Wounds and Injuries*, the author has brought together in a systematic and well organized form the principles which two and one-half years of military experience in an orthopedic hospital have led him to believe are the most practical in the treatment of war injuries. The circumstances of war make the reparation of functional utility a difficult procedure, both because of the unusual severity of war wounds and the frequency of septic infection, and the additional physical and mental strain detrimental to early recovery. In this volume are explained the simplest and most expeditious methods applicable to the reparation of damaged parts, the replacement of lost function,—by tendon grafting, tendon fixation, and fixation of joints,— restoration by physiotherapy and the fitting of appliances. As chronic sinuses of bone occur very frequently and are of great significance in delaying reparative work, one chapter is devoted to the rational treatment of this condition. In the event of mal-union of fractures, the treatment of various types of displacement,—longitudinal, angular, axial,—must be considered from the point of view of restoration by simple osteotomy or reconstruction of the original fracture.

A discussion of damaged joints, the classification, prognosis, and treatment of stiff joints, the prevention and treatment of flail joints, and the pathology, clinical types, and the surgical treatment of nerve lesions, presents information of vital importance to surgeons. Injuries of the muscles, tendons, and skin involve the problems of restoring continuity in muscles and tendons, the transplanting of muscles or tendons, tendon fixation, and surgical appliances. The technique to be employed in this work, and also in splinting and in the use of plaster of Paris, is described and illustrated in a concise and practical way. Methods of treatment by baths, massage, passive movements, active movements and exercises, light and heat baths, ionization and diathermy, radium and x-rays should also be familiar to surgeons. Over one hundred and forty photographs and diagrams are helpful in illustrating the text. This book sets forth the methods and principles of orthopedic surgery found to be of most value under war conditions, and should serve as an excellent guide to others in their practical work, whether civil or military.

Mental Diseases. By WALTER VOSE GULICK, M.D. St. Louis: C. V. Mosby Company. 1918.

The classification and diagnosis of mental diseases has been simplified by the publication of this volume, *Mental Diseases*. It presents the system adopted by the American Medico-Psychological Association in 1917, which has been accepted by the War Department and recommended for general adoption throughout the country. The different forms of psychoses are here included under twenty main heads: traumatic and senile psychoses, psychoses with cerebral arteriosclerosis, general paralysis, psychoses with Huntington's chorea, with brain tumor, or with other brain or nervous diseases, alcoholic phychoses, psychoses due to drugs and other exogenous toxins, psychoses with pellagra, and other somatic diseases, manic depressive psychoses, involution melancholia, dementia precox, paranoia conditions, psychoses with mental deficiency or with constitutional psychopathic inferiority, epileptic psychoses and undiagnosed psychoses. Other cases are classified according to mental deficiency, inebriety, or constitutional psychopathic states. In this book various types are considered with regard to the conditions peculiar to each; methods of examination are explained, and actual photographs illustrate the effects of mental diseases on different personalities.

Clinical Microscopy and Chemistry. By F. A. MCJUNKIN, M.A., M.D. W. B. Saunders Company, Philadelphia and London. 1919.

The ground covered in this volume of 381 pages is mainly that of the routine laboratory technic employed in tests made in connection with every-day practice. The subject matter is arranged under five headings: Blood; Sputum, Serous Fluids and Exudates; Urine; Gastric Contents; Feces; and an additional chapter is entitled Histologic and Autopsy Technic. Under each of these headings methods employed in interpreting the significance of clinical findings are carefully explained. Especial emphasis is made by the author on the clinical application of these chemical and biologic methods. As a textbook, it is clear and comprehensive and as a reference book for those whose memories need occasional refreshing in technical procedure, it should prove very helpful. The chapter on the histologic work of a hospital laboratory as well as that on autopsy technic are a valuable addition to the main subject matter, and many helpful illustrations serve to further clarify the text.

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MEDICAL FEES UNDER INDUSTRIAL ACCIDENT BOARD.

THE medical profession of the Commonwealth will be interested in an article which has appeared recently in many papers, referring specifically to certain legislative recommendations of the Industrial Accident Board to the incoming Legislature. Among these alleged recommendations was one referring to medical and hospital treatment under the Workmen's Compensation Act and providing for the treatment and care of an injured employee for the full period of his incapacity at the expense of the insurer,—the insurer, however, to have the right to name a limited list of physicians from which the employee was to be required to make his choice.

This alleged recommendation of the incoming Legislature was one of a large number of recommendations made by the Industrial Accident Board last year to the Recess Committee on Workmen's Compensation, which sat through the summer, and which finally reported to the Great General Court early in 1919. The recommendation was practically withdrawn by the Board, after hearing from the medical profession and conferring with representatives of the working population of the Commonwealth, all of whom were opposed to any amendment which would take from an employee his right to select his own physician.

It is a matter of record that the chairman of the Industrial Accident Board, after hearing labor's views upon the amendment providing for full medical treatment, without free choice, at the expense of the insurer, said: "This proposed amendment may now be regarded as a dead letter." Neither the Industrial Accident Board nor any other organization has since favored the amendment without reservations, nor has it been given serious consideration by the Recess Committee or the Legislature.

It appears that the press of the State, in the course of their publication of a statistical article prepared from the latest figures for publication, misunderstood the chapter relating to legislative recommendations and published them as if they were intended for the 1920 Legislature. It is not understood that the Industrial Accident Board has any intention of recommending any amendment which will deny to the employees of the State the privilege now enjoyed by them of selecting their own physicians to treat them when they are injured in their employment.

BRISTOL COUNTY TUBERCULOSIS HOSPITAL.

THE Bristol County Tuberculosis Hospital in Attleboro, which will be opened for the reception of patients in January, promises to be one of the best equipped hospitals in the State for the treatment of tubercular cases. The main buildings are already practically completed, the only work of importance still remaining to be done being the installation of modern hospital equipment and the grading of the spacious grounds. The property on which the institution has been constructed was formerly Talaquega Park, including one hundred acres at the altitude of one hundred sixty feet. The administration building and hospital are ideally

located on a slight elevation, facing open country under cultivation, and skirted in the rear by woodland overlooking a pond. The cost of the institution is estimated at $250,000.

Tuberculous patients from all communities in the county, with the exception of New Bedford and Fall River, each of which has a population exceeding fifty thousand, will be admitted to the hospital. The cities and towns in Bristol county, excepting New Bedford and Fall River, will each pay a proportionate share of the purchase price of the property, the cost of the buildings, and their maintenance. The buildings are of wood, thoroughly equipped with fire extinguishers. The hospital itself, which is a story and a half high, has been made fireproof as far as possible, and is also soundproof. The administration building is three stories high, having on the first floor administrative offices, a reception room, a large dining-room, and a kitchen which is equipped with a large steam table and mechanical dishwashers and dryers. The first floor is surrounded by a large veranda. On the second floor are the sleeping rooms, which will accommodate about fifteen nurses, and on the third floor are eight rooms for domestics. Each of the upper floors are surrounded by sun gardens, which patients will be permitted to enjoy.

In the rear of the administration building, and connected by a long corridor, is the hospital proper, which extends east and west about two hundred feet. In one wing there is a large ward for male patients, and the other provides accommodations for women and children. In the center of the building are two rooms for isolated cases. The building is so constructed that patients can be easily moved from the interior to the open-air sun platforms. As Dr. Adam S. MacKnight, who will be in charge of the institution, believes that attention should be given to psychology in the treatment of tuberculous patients, there will be reserved three rooms, containing four beds each, for patients whose characteristics differ from those of the other patients. Those with gloomy temperaments will be grouped together, to prevent demoralization, and jovial patients will find congenial companionship. In the basement of the hospital there will be four bowling alleys for the recreation of patients in stormy weather.

Patients who are able and desirous of working will be given employment and compensation. Fifty acres of land are under cultivation and will afford ample opportunity for men who wish to work in the fields. Patients with trades —carpenters, plumbers, steamfitters—will be given chances to work if they are in condition to do so. Women will be permitted to knit and busy themselves with such occupations as basketry, and will also receive compensation for their work.

The trustees of the Bristol County Tuberculosis Hospital are Richard W. Warner, chairman; Edward L. Crossman, treasurer, and Dr. MacKnight, secretary. Dr. MacKnight, who will reside at the institution and superintend its activities, was district examiner for the Rutland Sanatorium from 1903 to 1907, when he became state inspector of health, serving with the State Board of Health until 1918.

ENFORCEMENT OF THE HARRISON NARCOTIC ACT.

THE attention of physicians is called to a pamphlet entitled "Enforcement of the Harrison Narcotic Law," which has been issued recently by the Commissioner of Internal Revenue. The recent decisions of the Supreme Court of the United States indicate the necessity for exercising the greatest care in carrying out the provisions of the Harrison Narcotic Law, as amended by the Revenue Act of 1918. It is important to know that it has been held unlawful for a physician to furnish a drug addict with narcotic drugs for the purpose of satisfying his appetite, and not in the course of regular professional practice of medicine and in the proper treatment of disease; a practitioner who issues an order under these circumstances, as well as the druggist who knowingly fills such an order, is judged to have committed an indictable offense. A physician must personally attend the addict and himself administer the dosage in order to show that he is practicing in good faith.

Physicians will undoubtedly be called upon to meet many cases which it will be difficult to solve in strict accordance with the Harrison Narcotic Act, for it is not to be expected that rules can be formulated to cover every specific case. In view of this fact, a number of suggestions have been set forth in this pamphlet which may be found of great practical value.

In extraordinary cases which cannot be decided by the collector, a full and accurate statement of the facts should be submitted to the Bureau at once. In many cases involving the treatment of incurable diseases, aged and infirm addicts, and the ordinary addict, the following suggestions, which are subject to modification through further interpretation of the courts, may be helpful.

In the treatment of persons suffering from a proven incurable disease, such as cancer and advanced tuberculosis, it is deemed justifiable for the reputable physician, strictly for legitimate medical purposes, to prescribe narcotic drugs for the immediate need of these patients, provided he personally attends such patients. The prescriptions in these cases should be endorsed by the attending physician to the effect that the drug is to be dispensed to his patient in the treatment of an incurable disease. The treatment of these persons should be conducted cautiously and not too much credence given to the statements of the addict, as an unscrupulous person will often try to impose upon the physician in order to secure drugs to satisfy his cravings. As no fixed rule can be laid down for the treatment of incurable diseases, the responsibility rests with the physician primarily, and also with the druggist who fills the prescription.

There are cases where aged and infirm persons who have been addicted to the use of drugs for many years may require a minimum amount of narcotics in order to sustain life. Prescriptions written to satisfy the needs of these patients may be filled without criminal violation of the law. The prescription in this case should be endorsed by the physician and the statement made that the patient is aged and infirm, and that the drug is needed to sustain life.

The chief difficulty in carrying out the Harrison Narcotic Act will be met in the case of the ordinary addict who is neither aged nor infirm nor suffering from an incurable disease. It should be borne in mind that mere addiction alone is not recognized as an incurable disease. It is a violation of the law for practitioners to furnish an addict with narcotics for the mere purpose of satisfying his cravings for the drug. There is being considered a project by which the United States Public Health Service will assist in the institutional care of these addicts, but there has as yet been no specific appropriation made by Congress for this purpose. It is thought that it would not be difficult under the management of a reputable physician appointed by the local authorities, to examine, register, and give regular treatment to these ordinary addicts by reducing the dosage to a minimum and encouraging the addict to enter a hospital, sanitarium, or institution for further treatment and cure. It is the opinion of the Bureau that the so-called reductive ambulatory treatment, where narcotics are furnished to an addict who controls the dosage himself, will not benefit or cure the patient and will often lead to illicit traffic. All peddlers, smugglers, manufacturers, wholesalers, retailers, practitioners, and other persons who wilfully violate the intent and provisions of this law will be prosecuted by the field officers of the Bureau in order to eliminate this menace from the country.

MEDICAL NOTES.

A New Germ Foe of Man.—An investigation just completed by Surgeon Edward Francis of the U. S. Public Health Service adds another to the list of disease germs afflicting mankind. The germ, which bears the name of *bacterium tularense*, was first isolated by Drs. McCoy and Chapin, of the U. S. Public Health Service, as the causative agent in a plague-like disease of rodents. It was not then known that the same germ also infects man.

Dr. Francis now finds that *bacterium tularense* is the cause of "deer-fly fever," a disease occurring among the rural population of Utah and initiated (according to popular belief) by a fly bite on some exposed surface of the body. The site of the bite and the neighboring lymph glands become tender and inflamed, and they commonly suppurate. A fever, like that in ordinary blood poisoning, develops and lasts for three to six weeks. The patient becomes very sick and is confined to bed. The first case known to have ended fatally was reported in 1919.

Thus far something like two dozen cases of this disease have occurred in Millard County, Utah, in each of the years 1917, 1918, and 1919. Whether the disease prevails elsewhere is not yet known, but the announcement of the Public Health Service is expected to direct the attention of physicians to cases of this kind.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.—The following physicians have been elected officers of the American Association of Electrotherapeutics and Radiology for the year 1919-1920:

President, William Martin, M.D., Atlantic City, N. J.; vice-presidents, Virgil C. Kinney, M.D., Wellsville, N. Y.; William T. Johnson, M.D., Philadelphia, Penn.; S. St. John Wright, M.D., Akron, Ohio; Mary Arnold Snow, M.D., New York, N. Y.; John H. Burch, M.D., Syracuse, N. Y.; treasurer, Emil Heuel, M.D., New York, N. Y.; secretary and registrar, Byron Sprague Price, M.D., 17 East 38th St., New York, N. Y. Board of trustees: One year—J. Willard Travell, M.D., New York, N. Y.; Frederic deKraft, M.D., New York, N. Y.; two years—Frank B. Granger, M.D., Washington, D. C.; Frederick H. Morse, M.D., Boston, Mass.; three years—William L. Clark, M.D., Philadelphia, Penn.; Edward C. Titus, M.D., New York, N. Y.

ANTIRABIC TREATMENT AT THE PASTEUR INSTITUTE.—It has been reported in the *British Medical Journal* that during 1918, 1,805 cases underwent antirabic treatment at the Pasteur Institute in Paris. Among these there were five deaths, giving a mortality of 0.27 per cent. One of these five showed signs of hydrophobia during treatment, another failed to attend regularly, and the remaining three developed symptoms after the course of treatment. Cases are divided into three classes at the Institute: (1) those cases in which the biting animal is experimentally proved to have been rabid; (2) those in which the animal has been verified as rabid after veterinary examination; and (3) cases in which the animal is only suspected of rabies. Of the cases treated during 1918, only one of the fatal cases belonged to the last class. Eighteen cases were sent from England for treatment, none of whom developed hydrophobia. In the last thirty years, the total mortality among 32,817 cases treated has been 92, or 0.28 per cent.

USE OF SUGAR IN THE TREATMENT OF TUBERCULOSIS.—The use of sugar in the treatment of tuberculosis has been tried out in France, and the results obtained, reported in the December issue of *La Presse Médicale*, may be of interest to physicians in this country. The article describes the effect of injections of saccharose, and points out the value of sugar as a remedial agent. It appears that sugars act in two ways on the secretions when injected below the skin: if the doses are light, they augment them; if heavy, they decrease them. It has been observed that the use of sugars resulted in a diminution of expectoration, perspiration, and other symptoms. Occasionally there is manifested an increase in fever, but this has been attributed to the new fields of the disease which the injections cannot prevent. The treatment is resisted by tuberculosis in the advanced stages, with active foci and grave intoxication; but when the acute phases are absent, even when there is considerable expectoration, night sweats, and marked weakness, the injections of saccharose have been found beneficial. It has been stated that this treatment is useless and even injurious if the doses are weak, and in every case it requires the careful administration of a competent physician.

YELLOW FEVER.—Major General William C. Gorgas has reported, after directing a campaign against yellow fever at Guayaquil, Ecuador, that he believes the outbreak to be successfully terminated in this last large center where yellow fever has been epidemic. It is to be expected that there will still occur a few cases in remote communities, but it is probable that these will not be of sufficient seriousness to call for another organized campaign against this disease. Although the results of General Gorgas' work cannot be fully learned until after the close of the rainy season, it is thought that the sanitary work which has been accomplished there will be sufficient to prevent reinfection.

ANTI-TUBERCULOSIS WORK.—The National Tuberculosis Association and the American Red Cross are coöperating in conducting the campaign against tuberculosis. The national organization already has five of its leading officers at work in a speaking tour which will cover all sections of the country, and more than one thousand local and state societies are assisting with all available resources of men, women, and money. In order to reach the children of the country, the National Education Association, which has a membership of four

hundred teachers, is carrying on a health crusade in the schools; eleven "health chores" are to be done each day for fifteen consecutive weeks, by the children, who will be rewarded by the titles of page, squire, or knight bannaret, if their tasks are successfully completed.

In order to secure adequate financial support for the campaign, the American Red Cross has just put more than $6,500,000 worth of Red Cross Christmas seals on sale for the coming season. The importance of this work may be realized upon consideration of the fact that during the past twelve months 150,000 Americans died of tuberculosis. Although the disease is both preventable and curable, we have not yet made satisfactory progress in its suppression. One way to promote the work is to buy American Red Cross seals, which bear the motto: "Merry Christmas; Health and a Happy New Year."

A MINISTRY OF HEALTH IN THE UNITED STATES.—There are now before the United States Congress two bills for the establishment of a national department of health. Under the provisions of the first, there is to be a Secretary of State, who is a member of the Cabinet, and a commissioner of health, both to be appointed by the President. The department is to include bureaus of sanitary research, vital statistics, child hygiene, food and drugs, quarantine, sanitary engineering, government hospitals, personnel and accounts, an advisory board of seven expert consultants, and an official conference of State and territorial health. Under this suggested arrangement, the existing Public Health Service, Bureau of Chemistry, and Division of Vital Statistics would be transferred from their respective departments.

The other bill makes similar provisions, with an appropriation of $8,500,000 annually, $850,000 to be used in coöperation with the States in establishing a uniform system of health administration, $1,700,000 in coöperation with the States for sanitation, $4,250,000 in the control of communicable disease, and $1,700,000 for scientific research.

VITAL STATISTICS OF NEW YORK CITY.—The vital statistics of New York City for the year 1918 show that the death rate has been higher than that of 1917, a fact which may be explained in part by the influenza epidemic and the fact that two hundred thousand young men in the most resistant age group have been absent in war service. Influenza was responsible for an increase in the mortality of every age group up to fifty years; in the old age groups, that of sixty-five to sixty-nine is the only one which has not shown a decrease. The fact that the two infant periods, under five years and under one year, have both shown increases may be charged partly to the effects of influenza and its allied respiratory diseases. In spite of its increase during the past year, New York still holds a low infant mortality record,—ninety-two per thousand births in 1918, compared with eighty-nine in 1917.

The 1918 mortality rates for typhoid, consumption, and cancer, organic heart and kidney disease, and diarrheal diseases among children under five all show a decrease over those of 1917. On the other hand, the children's diseases of measles, whooping cough, and diphtheria show slight increases. The mortality rates as a whole show that New York possesses an efficient health administration. Perhaps the two needs most clearly manifested by the vital statistice are a better knowledge of the maladies most common among children, and the education of households in matters of public health.

NATIONAL RESEARCH COUNCIL.—Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic at Harvard University, has accepted in Washington, for the academic year 1919-20, the position of Chairman of the Division of Medical Sciences of the National Research Council. Dr. Christian has been Physician-in-Chief of the Peter Bent Brigham Hospital, Boston, since 1911, and was Dean of the Faculty of Medicine in the Medical School of Harvard University from 1908 to 1912. He is a well-known and active member of various national associations of medical men and of the American Academy of Arts and Sciences.

MEDICAL RESEARCH FOR BRUSSELS.—A contribution has been made by New York society leaders to the King and Queen of Belgium for founding a medical research institute in Brussels similar to the Rockefeller Institute in this country.

ELECTION OF DR. MURPHY TO YALE CORPORATION.—Dr. Fred T. Murphy, a Detroit physi-

cian, has been elected a member of the Yale corporation, to succeed Dr. Parker of Hartford, who has resigned recently. Dr. Murphy was graduated from Yale in 1897. He was formerly on the staff of the Massachusetts General Hospital. At the present time he is chief of the medical and surgical sections of the Red Cross.

RED CROSS BASE HOSPITALS.—The base hospitals organized by the Red Cross for the Army and which were in use during the war, will be held intact for future emergencies, at the request of the War and Navy Department and as a part of the peace program of the American Red Cross. There are fifty of these base hospitals located at important points throughout the country.

SACCHARIN AS A SUBSTITUTE FOR SUGAR.—The bureau of chemistry of the Department of Agriculture has issued a warning to the public against the use of saccharin as a substitute for sugar during the present shortage. Dr. Carl I. Alsberg, chief of the bureau, is reported to have issued the following statement:

"The Department regards food to which saccharin has been added as adulterated, since a substance has been added which may render it deleterious to health. It also regards it as adulterated in that a substance of no food value whatever has been substituted for sugar, a very valuable food."

DRUG PRICE CHANGES.—The following report has been issued by the Drug and Chemical Markets: There have been many advances in the essential oil market, including oil of cloves, oil of bay, spike lavender, oil of cedarwood, oil of cubebs, and Italian orange oil. Wormseed and wormwood oils are very scarce. Safrol is difficult to locate in the local market. Bergamot and sandalwood oil are easier.

The call for phenol for export is increasing, but orders cannot be filled. Betanaphthol is under heavy inquiry, but shortage of stocks prevents spot business. Many extracts of dyewood are in limited supply, especially logwood, archil and hematine. Annatto, cochineal, and fustic are difficult to locate. Dextrines and starches are firm.

The harbor strike at New York has held up exports of vegetable and animal oils, and the foreign trade is temporarily dead. Soya bean and cocoanut oils, which were active last week, were quiet and dull. Linseed oil for October delivery has declined ten cents a gallon. Lard oil was advanced five cents. Other changes were slight.

Quicksilver and mercurials are lower. Creosote carbonate, quinine sulphate, opium, and antipyrine are easier. Many crude drugs have advanced owing to scarcity, including elm bark and short buchu leaves. Price revisions were not numerous in the drug market. Business was active, and buyers are purchasing more freely.

Ammonium sulphate and ammonia water are extremely scarce, owing to the limited production of the by-product coke ovens. In spite of the handicap to trading caused by scarcity and the shipping difficulties due to the longshoremen's strike, a large volume of business was transacted this week in the heavy chemical market. Ammonium sulphuret is higher. Alums are firmer. Red arsenic is easier. Muriate lump is scarce. Caustic soda and soda ash are stronger. There is an acute shortage of sulphuric acid.

TYPHUS IN POLAND.—The International Red Cross has recently reported 124,000 cases of typhus in Poland, and has issued a warning to the western world. It is believed probable that the coming winter will witness one of the most severe epidemics that the world has ever seen. Doctors, nurses, hospitals, and medical supplies are greatly needed in order to secure the world's protection.

MEDICAL STUDENTS IN SWITZERLAND.—The *British Medical Journal* has published recently the following figures, summarizing the number of students in medicine in the five universities of Switzerland in the winter session of 1918-1919. The total number was 1,704. Bâle had 230, including 19 women, of whom three were foreign; of the male students 34 were foreigners. Berne had 390, including 30 women, of whom 15 were foreign; of the men, 125 were foreigners. Geneva had 317, including 62 women, of whom 47 were foreign; of the men, 112 were foreigners. Lusanne had 244, of whom 22 were women, eight of them foreign; of the men, 52 were foreigners. Zürich had 523, of whom 101 were women, eight of them foreign; of the men, 95 were foreigners.

Medical Department of the University of Georgia.—The appropriation for the medical department of the State University of Georgia has been increased from $30,000 to $55,000. Of the new funds, the sum of $20,000 is to be used in establishing a course in Public Health and Hygiene, and $5,000 is to be added to the general income of the school.

Research and Practise of Biochemistry.—A legacy of $60,000 has been made by the late Dr. Rizzi, physician in chief of the Ospedale Maggiore at Milan, for the purpose of founding an institute for research and practise of biochemistry.

Appointment of Professor L. Bard.—Professor L. Bard has been appointed to the chair of clinical medicine at the University of Strasburg. For twenty years he has held a similar position at the University of Geneva.

Harvey Society Lectures.—The first two of the series of the Harvey Society have been given at the New York Academy of Medicine. The first, "Biological Standards and Their Application to Medicine," was delivered by Lieutenant Colonel George Dreyer, M.D., professor of general pathology, Oxford University, on October 18. The second lecture, given on October 25 by Dr. H. H. Dale, of the Lister Institute of Preventive Medicine, London, was on the subject of "Shock."

Professional Anniversary of Professor G. Romiti.—The fiftieth professional anniversary of Professor G. Romiti, of the chair of anatomy, was recently celebrated by the University of Pisa. A marble portrait bust was unveiled, and Professor Romiti presented to the University his library on anatomy.

Anatomy Department of Johns Hopkins Medical School.—The Department of Anatomy at the Johns Hopkins Medical School has been organized to include the following professors and instructors: Lewis H. Weed, professor of anatomy; Florence R. Sabin, professor of histology; George W. Corner, associate professor of anatomy; Charles C. Macklin, associate in anatomy; Robert S. Cunningham, associate in anatomy; Chester H. Heuser, associate in anatomy; Jean Firket, instructor in anatomy; William A. McIntosh, assistant in anatomy.

Medical Scholarships for Negroes.—Six scholarships of twelve hundred dollars each have been offered by Julius Rosenwald of Chicago for the use of negro graduates of American Medical schools for post-graduate work in pathology, bacteriology, physiology, pharmacology, or physiological chemistry. The following committee will award the appointments in 1920: Dr. William H. Welch, Johns Hopkins School of Public Health, chairman; Dr. David L. Edsall, dean of the Harvard Medical School, and Dr. Victor C. Vaughan, dean of the medical department, University of Michigan. Abraham Flexner, secretary of the General Education Board, will be secretary of the committee.

Rockefeller Gift of $20,000,000.—The sum of $20,000,000 has been placed at the disposal of the General Education Board by John D. Rockefeller for the purpose of improving medical education in the United States. The income of this amount is to be used currently, and the entire principal to be distributed within fifty years. No plans have yet been made for its use, but it has been announced that it may be expected that substantial financial aid may be given to the five great medical centers of this country—New York, St. Louis, Baltimore, Chicago, and Boston. None of the money will be spent on educational propaganda, but will be expended directly and practically. Abraham Flexner, secretary of the board, is reported to have said that large sums will be used for the improvement of the hospital facilities, the teaching staffs, and the laboratory facilities of such schools as are decided to be worthy of help, and that a general survey of the schools of the country would be made in order that the needs of all parts of the United States could be considered in the distribution of the money. The gift came as a surprise, and is probably the first of its kind to be made.

Control of Venereal Diseases in Spain.—There has been established recently in Spain by royal decree a permanent board for the control of venereal diseases in that country. This board includes a number of the leading members of the medical profession in Spain and representatives of all classes. It has been reported in the *British Medical Journal* that Mar-

tin Salazam, director of public health, has stated that it is proposed to create institutions after the English model for prompt diagnosis and treatment. The board will study all the measures which will be proposed by the Spanish Anti-Venereal League, and will report progress in the control of diseases to the Government.

BIRTH AND DEATH RATES IN EASTBOURNE.—Another instance of the decreasing birth-rate in England is reported in the statistics of the Medical Officer of Health for the Borough of Eastbourne. During 1918 the birth-rate was considerably diminished and the death-rate was somewhat above the average. The war is not wholly responsible for the low birth-rate, for in the years preceding the war the number of children in the elementary schools was noticed to be decreasing yearly instead of increasing. It is hoped that adequate measures may be adopted for removing some of the obstacles to the successful bringing up of children and for checking the race suicide which is threatening England.

HOSPITAL AT MONTDIDIER IN MEMORY OF AMERICANS.—A municipal hospital is to be established at Montdidier in memory of the American soldiers who fell at Cantigny. It will be constructed from American Red Cross barracks, and will bear the following inscription over the entrance to the administration building: "Gift of the American Red Cross to the Town of Montdidier. In memory of the American Soldiers Who Fell at Cantigny."

CARE OF FRENCH TUBERCULOUS SOLDIERS.—The work which the French Government has undertaken in the care of tuberculous soldiers, —in civil institutions, general military hospitals, and sanatoria,—has been outlined in the *Revue Scientifique*. In 1916, in all departments committees were formed to whom were entrusted the care of all of the diseased soldiers. These committees are private associations, vested with some public authority, and are supported by private sources and some assistance from the State. The men are named to the committees, who furnish them as far as possible with prophylaxis, therapy, and social and family help. More than eight thousand men are thus cared for in the Department of the Seine alone. The work of these committees has been so successful that numerous others have been formed which have greatly extended the original scope of the work. Over seventy dispensaries have been established, and eight sanatoria and nine departmental isolation hospitals have been erected from private subscriptions.

MALARIA CONTROL IN CUBA.—Cuba has organized a definite campaign against the malaria which continually threatens its tropical climate. Questionnaires have been sent to those in charge of the various sanitary districts so that actual conditions might be known; laboratories, some for diagnostic purposes and four for research work, have been equipped and utilized; and special districts presenting particular problems have been mapped out and assigned to special sanitarians. It is probable that after strict sanitary measures have been followed in Cuba for two years,—in cleaning up, removing the low weeds and shrubs, draining, petrolization, and screening,—there will result a marked improvement in the malarial statistics of that country.

INTERALLIED CONFERENCE IN ROME.—There was held in Rome in October (12th to 17th) the third interallied conference for the study of questions relating to war invalids. The following subjects were discussed: artificial apparatus for crippled men; physical and functional reëducation; help for the blind, deaf, and tuberculous; international legislation for war invalids, material and economic organizations, including benefit societies, coöperative production and similar topics, and pensions. There was also an exposition of prosthesis.

BOSTON AND MASSACHUSETTS.

RELIEF AND CONTROL OF TUBERCULOSIS.—At a meeting of the Executive Committee of the Boston Association for the Relief and Control of Tuberculosis held Wednesday, October 22, the Association decided to act as the agent of the National Tuberculosis Association for the sale of Red Cross Christmas Seals in the City of Boston, and appointed the following committee to supervise the sale: Arthur K. Stone, M.D., chairman; Vincent Y. Bowditch, M.D., and James J. Minot, M.D.

The number of seals the Association is expected to sell in Boston is 7,200,000 at one cent each.

Frank S. Mason has been engaged as Campaign Manager, and in order to sell this quota it will be necessary to wage a vigorous campaign. Seventy-two and one-half per cent. of the proceeds from the sale of the seals will be used for tuberculosis work by the Boston Association, the balance to be used by the Massachusetts Tuberculosis League and by the National Tuberculosis Association.

Physicians and others interested in suppressing tuberculosis are urgently asked to help sell these seals. Any who care to do this or to volunteer any portion of their time are urged to send their names to the office of the Boston Association for the Relief and Control of Tuberculosis, 3 Joy Street, Boston.

Dr. W. J. Collins has returned to Northampton from France. Dr. Collins volunteered for service in June, 1917, as First Lieutenant and was ordered to Fort Benjamin Harrison for training; after extensive service, both in this country and with the Army in France, he attained the rank of Lieutenant-Colonel and was discharged October 21 at Camp Dix, N. J.

The Following Fellows have been recently discharged from the Medical Corps as Captains: Dr. A. N. Ball, who has resumed his former appointment at the State Hospital, Northampton; Drs. E. H. Hughes, B. F. Janes, C. T. Cobb, M. E. Cooney, H. G. Rockwell (Amherst), W. Hiltpold, and E. S. Winslow, (Easthampton), all of whom have returned to practice after varying terms of service in the United States and France; and E. E. Thomas, who was attached to the R. A. M. C. of the British Army in France and Belgium. Dr. Thomas has been elected secretary of the Hampshire District Medical Society in place of Dr. J. D. Collins, resigned.

Dr. Dana Frank Cummings has removed from Cherryfield, Maine, to Natick, Mass.

Children's Pavilion at the Sharon Sanatorium.—The Children's Pavilion which has been added to the Sharon Sanatorium for Women affords an unusual opportunity for tuberculous children of the middle classes. Children of the very poor are cared for by the State sanatoria, and the wealthy are well protected; this Pavilion is intended for the children of people of moderate means who cannot afford expensive places but who wish to have their children in healthful and pleasant surroundings. The advantages of the open-air school and constant medical care are great, and have gained excellent results during the first year. The Children's Pavilion promises to be an important factor in the control of tuberculosis.

Medical Social Work at the Boston City Hospital.—The Boston City Hospital is in urgent need of medical social workers in the eye, ear, nose and throat clinics and for carrying on the work recently begun with the surgical children. An appeal has been issued also for additional funds with which to extend this service. A paid staff of sixteen, with a rising budget of $20,000, imposes a heavy burden on the committee of earnest women who have made possible such service at the City Hospital. Contributions may be sent to the treasurer, William C. Endicott, 71 Ames Building.

Appointment of Dr. Goetsch.—Dr. Emil Goetsch, formerly resident surgeon of the Peter Bent Brigham Hospital, Roxbury, Massachusetts, has been appointed head of the surgical department of Long Island College, New York. At the time of his appointment, Dr. Goetsch was associate professor of surgery at Johns Hopkins University. Dr. Goetsch is 37 years of age, and a graduate of the University of Chicago.

NEW ENGLAND NOTES.

Anti-Tuberculosis Association of New Hampshire.—At a recent meeting of the Anti-Tuberculosis Association of New Hampshire an organization was formed for the purpose of raising $100,000 for fighting tuberculosis in that State. W. R. Goodnow of Keene was elected chairman of the committee, and will establish his headquarters in Manchester.

Smallpox in Lawrence.—One case of smallpox was reported to the Board of Health of Lawrence on October 20. The patient has been isolated and several people residing in a tenement block have been placed under quarantine. Three hundred employees of a local mill where one of the tenants in the house is employed will be vaccinated as a safeguard, as will be the employees also of a machine company at North Andover, where the son of the victim works.

SCARLET FEVER IN WAKEFIELD.—Fifteen cases of scarlet fever were reported in Wakefield recently. The primary department of the Greenwood School has been closed and the Union Church and the Catholic Mission have suspended services in order to aid in preventing the spread of the disease.

RED CROSS APPOINTMENT FOR PROFESSOR WHIPPLE.—It has been announced that Professor George C. Whipple of Harvard University has been appointed director of the division of sanitation in the bureau of hygiene of the International League of Red Cross Societies. Professor Whipple will continue his work at Harvard until February, when he will go to Geneva, the headquarters of the League.

EFFORT TO STANDARDIZE MEDICAL EDUCATION.—A conference was held recently in Boston by the faculty of the Boston University Medical School with officials of national organizations that are trying to standardize medical education. It is reported to have been proposed, by Dr. George Royal of Des Moines, Iowa, chairman of the Council of Medical Education of the American Institute of Homeopathy, and by Dr. G. M. Cushing of Chicago, a member of the Illinois board of registration, that in addition to the four-year college course, one year in a hospital be required of the student before he be given a license to practise medicine.

WEEK'S DEATH RATE IN BOSTON.—During the week ending October 25, 1919, the number of deaths reported was 175 against 436 last year, with a rate of 11.46 against 28.99 last year. There were 30 deaths under one year of age against 64 last year.

The number of cases of principal reportable diseases were: Diphtheria, 63; scarlet fever, 32; measles, 67; whooping cough, 13; typhoid fever, 1; tuberculosis, 59.

Included in the above were the following cases of non-residents: Diphtheria, 18; scarlet fever, 10; tuberculosis, 10.

Total deaths from these diseases were: Diphtheria, 3; typhoid fever 1; tuberculosis, 12.

Included in the above were the following non-residents: Diphtheria, 2; tuberculosis, 1.

Influenza cases, 6. Last year: Influenza cases, 304; influenza deaths, 174.

Correspondence.

AN APPEAL FOR HUMAN EMBRYOLOGICAL MATERIAL.

In 1906 I observed certain malformations of the human shoulder-blade, and, in contributions to current literature, I have given them the collective name —"the scaphoid type of scapula"—and have pointed out some of its hereditary, clinical, and anatomical significance.

Probably the most important observation connected with this type of scapula in man is its age incidence, that is to say, it occurs with great frequency among the young and with relative infrequency among the old. There appear to be two possible explanations of this fact: Either (*a*) one form of shoulder-blade changes into the other during development and growth; or (*b*) many of the possessors of the scaphoid type of scapula are the poorly adaptable, the peculiarly vulnerable, the unduly disease-susceptible—the inherently weakened of the race.

I have attempted to answer these questions by seeking evidence in various directions, and one of the most important of these has been a study of intrauterine development of shoulder-blades. My investigations in this direction have been limited by the material at my disposal, which has been inadequate for a definite solution of this phase of the problem. I am, therefore, appealing to physicians for fetuses in any and all stages of human development.

It is desired that the material, as soon as possible after delivery, be immersed in 10% formalin in a sealed container, and be forwarded to my address, charges collect. Due acknowledgment will be made to those forwarding material.

WILLIAM W. GRAVES,
727 Metropolitan Bldg.,
St. Louis, Mo.

SOCIETY NOTICE.

THE MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE will hold a conference at Puckerman Hall, Worcester, Friday, November 14, at 4 P.M. The program is as follows:

Dr Samuel B. Woodward presiding.

1. A State Program for the Care of the Feeble-Minded, by Dr. Walter E. Fernald, Superintendent, Massachusetts School for Feeble-Minded.
2. Mental Hygiene and the School, by Prof. W. H. Burnham, Clark University.
3. Grail or Dragon—Notes on the Prime Task of Humanity, by E. E. Southard, Director, Massachusetts State Psychiatric Institute.

The public is cordially invited.

RECENT DEATHS.

DR. EDMUND BAILEY FRYE, a Fellow of the Massachusetts Medical Society, died at Boston, October 23, 1919, aged 63. He was born at Concord, N. H., October 20, 1856, was graduated from the Dartmouth Medical School in 1880, and settled in practice at Plaistow, N. H. He moved to Roxbury, Mass., in 1887, and later lived in Wellesley Hills. He had not been in practice since 1900. He is survived by his widow and four children.

DR. ROY CHURCHILL SKINNER, of Wellesley Hills, died at his home in Boston on October 10. Dr. Skinner was a prominent dentist, practising in Boston. He is survived by his widow, a son, and a brother.